

## MACHINE STRUCTURAL PARTS HAVING HIGH PLANE FATIGUE STRENGTH AND ITS PRODUCTION

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### Abstract of JP 7118791 (A)

**PURPOSE:** To obtain machine structural steel parts excellent in plane fatigue characteristic by specifying the chemical components of a steel stock and also applying a two-stage induction hardening under respectively specified conditions. **CONSTITUTION:** A steel stock, having a composition consisting of, by weight, 0.35-0.75% C, 0.05-1.0% Si, 0.3-2.0% Mn, 0.015-0.05% Al,  $\leq 0.03\%$  S,  $\leq 0.015\%$  P, and the balance essentially Fe, is used. After forging this stock, induction hardening is done with  $\approx 200\text{KHz}$  frequency to obtain  $\approx 0.5\text{mm}$  hardening depth, and then, hardening is done again with  $\approx 200\text{KHz}$  frequency at a maximum ultimate temp. between  $A_c$  and  $(A_c+150\text{K})$  to a hardening depth shallower than that at the time of the first stage hardening, by which carbides are finely dispersed at  $\approx 10$  surface  $\gamma$ -grain size. By this method, the parts for machine structural use, having high plane fatigue strength, can be obtained.

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